MONTANA

DEPARTMENT OF HIGHWAYS

H. J. ANDERSON
Director of Highways

SAFETY MANUAL

MONTANA DEPARTMENT OF HIGHWAYS

GEORGE VUCANOVICH, Chairman

W. M. KESSNER, Vice-Chairman

BAXTER LARSEN, Member

G. R. COONEY, Member

P. L. BACHELLER, Member

Compiled by
Safety Section
FULKERSON, Supervisor

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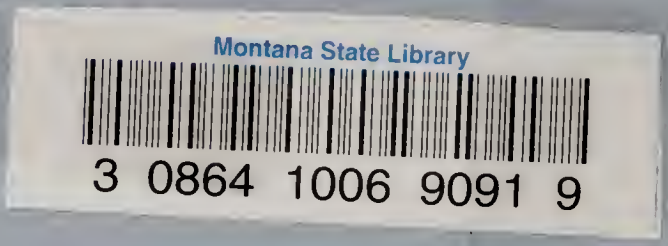

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C. P. FULKERSON, Supervisor

COLOR WORLD OF MONTANA, INC.
201 E. Mendenhall, Bozeman, MT 59715

PREFACE

The prevention of accidents is basically similar to the solution of any major department problem, e.g., increasing productivity, improving quality or controlling costs. All these problems require the application of certain elementary principles and techniques. It is the same with accident prevention. There are no quick remedies, gimmicks or magical recipes. Sticking to basic principles and using basic procedures effectively produce results.

Basic principles are the guides that tell us broadly WHAT has to be done to have an effective accident prevention program. Basic procedures tell us HOW to carry out the activities indicated by the basic principles.

The regulations for procedure in this manual apply at all times to all employees and are not limited to the section under which they are printed. These regulations do not relieve an employee from complying with state and local laws. They are minimum precautions to be taken.

Violation of these minimum regulations will result in appropriate disciplinary action.

Supervisory personnel are responsible for preventing unsafe acts and practices. Part of this responsibility includes (1) thorough orientation of new employees and (2) correcting employees observed working in an unsafe manner.

It is incumbent upon each employee to look after his own safety and the safety of his fellow workers. Through this type of cooperation we can prevent personal injury and property damage.

The tear-out receipt in the back of this manual is to be signed by the employee and returned to the Safety Section for insertion in his permanent file.

Montana Department of Highways
Helena, Montana

FELLOW EMPLOYEES
DEPARTMENT OF HIGHWAYS

The rules and regulations contained in the safety Code have been compiled from the latest and best sources of safety information and accident prevention and from our own practical experiences are presented as a guide for the promotion of safe methods in all Department of Highways work operations.

An effort has been made to cover, as fully as possible, in a booklet of this size, the safety measures deemed necessary to eliminate hazards and reduce accidents which might result in the injury of Department of Highways employees, damage to equipment, injury to other persons, or damage to Public Property.

We believe that you will appreciate this code and accept it for the purpose intended. It is asked that you give your wholehearted support and cooperation to our Safety Program and that you become safety conscious so that you may protect yourself and your fellow employee.

Remember that everything contained in this Safety Code is for your benefit.

Very truly yours,

C. P. Fulkerson

C. P. FULKERSON,
Supervisor — Safety Section
Montana Department of Highways

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Section 1
OBLIGATIONS FOR SAFETY

A. GENERAL

It shall be the responsibility of each Supervisor — Division Construction Sections, Chief Field Maintenance Bureaus, Division Mechanics, Supervisors — Field Maintenance Sections, Managers, Field Project Units, or their representatives to carry out the current safety program as approved by the Department of Highways, the Director of Highways, the Safety Section and the Workmen's Compensation Division of the Department of Labor.

Each supervisor shall be responsible for the personal safety of each man and the safe operation of all equipment under his jurisdiction.

Indoctrination of a new employee shall include complete safety instructions given by his immediate supervisor or managers.

Employees shall be trained in the safe working habits and correct operations of equipment.

B. FREEDOM OF DISCUSSION ON SAFETY MATTERS

The Safety Section advocates free discussion and open, constructive criticism concerning any matters which pertain to safety. Only by learning of existing unsafe conditions or unsafe practices may a solution be found and corrections made.

It is not the wish of the Safety Section to place anyone intentionally in an embarrassing position. It is the intent of the Safety Section to attempt to remove persons from possible embarrassing situations arising from potential accidents by aiding in the elemination of unsafe conditions and practices before such accidents occur.

C. PUBLIC RELATIONS

Public relations are a very important part of our work, and general highway courtesy will do a great deal toward improving these relations. The day by day actions of Department of Highways employees and the conspicuous color of our vehicles, create favorable or unfavorable comment by the traveling public. (They are subject to more unfavorable comment perhaps, than other workers.)

Driving at an excessive speed or at a very slow speed, passing long lines of traffic, pulling around traffic that is slowing down for warning signs—all do a great deal toward destroying good public relations.

A neat flagman who can tell the traveling public, in a few pleasant words, why and how long they are being stopped, will do a great deal toward improving our relations. Supervisors, Managers, R/W Personnel and flagmen make the majority of the contacts with the public and the impression they leave is the impression the public has of the Department.

Treat the public as you would want to be treated. Courtesy and a pleasant, cheerful manner will pay off in friends for the Department.

TO HAVE GOOD PUBLIC RELATIONS, WE MUST FIRST HAVE GOOD EMPLOYEE RELATIONS WITH ONE ANOTHER.

Section 2

GENERAL SAFETY RULES:

HOUSEKEEPING:

Housekeeping is one of the most important factors in accident prevention. Housekeeping is not only cleanliness, but it is also keeping things in order, and in the proper place in buildings, yards, stockpile areas, on the job, and in the equipment. Periodic inspections will be made on all Department of Highways Installations.

LIFTING:

Get the knack—learn the trick to avoid sprains, strains, ruptures, bumps, cuts, bruises, fractures, etc.

A. Never lift beyond your strength. Get help when necessary. You know how much you can do.

B. Use your strong leg muscles. Lift by standing up or pushing up.

C. Always crouch down when you are going to lift.

D. Get a firm grip. Wipe off slippery hands. Place hands underneath. Wear gloves to protect from sharp or rough surfaces.

E. Get firm footing on a non-slippery surface strong enough to support you and the load.

F. Keep load as close to body as possible.

G. Keep well balanced, and don't twist your body while lifting.

H. Lift carefully, don't jerk.

I. Put things down in the reverse order of the above.

GRINDING:

A. Make sure that guards are properly in place, and that the tool rest is correctly adjusted, no more than 1/8" from wheel.

B. Wear safety goggles at all times when using a grinding wheel.

C. Keep grinding wheel properly dressed so abrasive grains are always exposed, and wheel is in balance.

D. Wheel failures are caused by: incorrect mounting, excessive speeds, cracks or flaws in wheel and improper use of wheel such as striking wheel with tool.

CHAIN SAWS:

To be operated only by authorized and properly trained personnel.

GENERAL:

A. When scaling a cliff, wear a hard hat and a safety belt. Examine the face for loose rocks; avoid working under other men; always pry from above or from the side of rock.

B. Trenches with vertical sides shall be held with timber bracing if they are four feet or more in depth.

C. When carrying long materials on shoulders, both men should carry on the same shoulder and be in step.

D. Keep a safe distance from other employees when cutting brush.

E. Keep tools sharp. More injuries occur with dull tools than with sharp ones.

F. Look both ways before crossing the highway or railroad tracks.

G. Haste is the cause of a great many personal injuries; take a little more time and do the job safely.

H. Keep your mind on your work; both working and driving. Watch where you are going.

I. Worry can be a menace to your work and your safety. If troubled about something, concentrate on your work; attack is the best defense.

PROHIBITED PRACTICES

A. Men shall not ride on the outside of any vehicle unless upon a step or platform intended or designed for this purpose.

B. No one shall jump on or off of vehicles when they are in motion.

C. Do not ride loads being lifted by cranes.

D. Do not get under loads which are being carried by cranes.

E. Never remove trash from a mower sickle while the sickle is in motion; throw it out of gear before touching it.

F. Do not use improper, broken, or mushroomed tools, or tools with split or broken handles.

Section 3

CHARGEABLE AND NONCHARGEABLE ACCIDENTS

In each Division, a Review Board is designated to review all accidents. It is the duty of this Board to determine if an accident is chargeable or non-chargeable.

This Board consists of four (4) members; three (3) members from the local division appointed by the Chief — Maintenance Bureau, and the fourth member is from the Safety Section of the Helena Headquarters. It is recommended that the three (3) members from each division include the Maintenance Foreman, one (1) member that is non-supervisory capacity, and one (1) member from the Construction Bureau. The Review Board shall meet periodically (recommend at least once every 90 days.) in the Division at times and dates to be set by the Safety Section.

REMOVAL OF CHARGEABLE ACCIDENTS:

Each chargeable accident shall remain on the operator's record for a period of three (3) years from the date of the accident, at which time it shall be removed from his record.

PENALTIES:

Operators who have had one (1) chargeable accident will be notified and warned. Operators who

have had two (2) chargeable accidents, within a three (3) year period, are subject to time off without pay.

Operators who have three (3) chargeable accidents on their record, within a three (3) year period, are subject to dismissal. Exceptions to this policy will be in cases where higher authority elects to dismiss an operator before he has had three (3) chargeable accidents.

APPEAL:

Any personnel desiring to appeal the decision of the Division Review Board will notify the Safety Supervisor in writing of their desire to appeal and will include all pertinent information and facts. The Headquarters Review Board will then act on the appeal. If the Headquarters Boards sustains the decision of the Division Review Board and the employee is still not satisfied he will be given the opportunity to appear personally before the Headquarters Review Board at a time convenient to the Board and at the employee's own time and expense.

PROHIBITED PRACTICES:

Any action of "Horseplay" on work operations will not be condoned by the department and may result in severe disciplinary action.

Practical jokes and the misuse of Department equipment for purposes of intended humor are prohibited.

All unauthorized personnel are prohibited from riding in Department vehicles except in emergencies. Picking up hitchhikers is prohibited.

Keep unauthorized persons, especially children, away from places where work is being performed. Do not allow them near vehicles, shovels, tractors, open excavations, heaters, hot materials, etc.

INTOXICANTS:

No intoxicating liquor or beverage shall be brought upon the grounds owned or operated by the Department of Highways, nor will any intoxicants be transported in any vehicle owned by same. Under no circumstances shall an employee under the Influence of Intoxicants attempt to operate any vehicle or piece of equipment owned or leased by the State. The Supervisor or Manager will not allow an employee to go on the job if it is deemed that his condition will in any way jeopardize the safety of other employees, property or equipment.

Section 4

REPORTING ACCIDENTS– Personal Injury, Vehicle and or Property Damage

A. PERSONAL INJURY

All serious or fatal accidents must be reported immediately by the fastest means of communication available, (teletype, radio or telephone), through Division Headquarters to the Safety Supervisor, at Helena, listing all details which are immediately available.

FORMS: (Workmen's Compensation Division)

1. Workmen's Compensation Divisions form 90 "Notice to Doctor." This form is to accompany patient to Doctor's office or hospital.

2. Workmen's Compensation Divisions form 37 "Employer's First Report of Injury." Make in triplicate at earliest possible time, one copy to Workmen's Compensation Division at Helena, one copy to Safety Section, Department of Highways at Helena, and one copy for Division office file.

3. Workmen's Compensation Division form 54 "Claim for Benefits," is to be used in the event of a lost time accident.

B. VEHICLE AND/OR PROPERTY DAMAGE

All accidents involving any Motor Pool or Department of Highways equipment, either directly or indirectly, must be reported immediately by the fastest means available (teletype, radio, or telephone), through Division Headquarters to the Safety Section at Helena, listing all details that are immediately available.

1. A green original and two (2) white carbon copies of the Travelers Insurance Company Form No. C-5461, Rev. 7-67, must be completed in detail and all three (3) copies forwarded to the Supervisor — Safety Section in Helena as soon as possible within a maximum 10 day limitation.

2. Montana Highway Patrol Report must be filed whenever a Motor Pool or Department of Highways vehicle or equipment is involved either directly or indirectly in an accident with a second party. This report must also be filed when no second party is involved, but damage exceeds $250.00.

ACCIDENTS: Failure to Make Written Report

Failure to make a written report of a motor vehicle accident or a personal injury without delay shall result in disciplinary action.

WHAT CAUSES AN ACCIDENT

An accident is a practical demonstration of the law of cause and effect. The accident itself is the effect and the cause may be any of the following factors:

1. Failure to issue, properly explain or enforce instructions;
2. Violation of a safe-practice rule;
3. Lack of supervision;
4. Inexperience;
5. Poor discipline;
6. Undue haste;
7. Not safety minded;
8. Carelessness;
9. Willful negligence.

Any hazardous act or condition not otherwise specifically covered by this Safety Code is considered unsafe and in this respect is prohibited.

REMEMBER . . . "If you are alert, you won't get hurt."

Section 5

PROTECTIVE DEVICES

MACHINE AND EQUIPMENT GUARDS

It is the duty of the employee operating a machine to see that all guards are in place before starting the machine.

Do not remove any guards to make repairs while the machine is running. Guards which have been removed to make repairs shall be replaced before the machine is started.

Safety belts and lines shall be provided and used when an employee is exposed to hazards of falling, when 15 or more feet above water, solid ground or solid platform.

Life rings with line attached, shall be in place on all bridges where employees are working over water five feet or more in depth.

Risers in any stairway shall be of uniform height. No stairway shall be constructed with risers more than nine inches or less than five inches in height.

Do not use worn out rope or jagged cables; replace them.

Do not use burned cable as it is unsafe if it has been heated enough to fry the grease from the inside.

Check peavey hooks after they have been used to roll rocks as a dull hook will slip when used on timbers.

Signals to hoist operators shall be given by hand and not by calling. Where manual (hand) signals are used, only one person shall be designated to give signals to the operator. This signal man shall be so located as to be clearly visible to the operator at all times.

PROTECTIVE CLOTHING:

Employees required to work where overhead structures, equipment, or materials create a hazard such as hot plants, crushers and falling rocks, shall be provided with Hard Hats and are required to wear them at all times while so employed. Employees exposed to traffic shall wear Hard Hats and reflectorized vests.

Welder's helmets shall be worn while welding or cutting.

Goggles shall be worn when grinding, wire brushing, and in excessive dust.

Respiratory protective devices shall be furnished to employees when lack of such protective devices or equipment may constitute an occupational health hazard.

Employees shall be encouraged to buy hard toe shoes to wear when handling materials or working in maintenance sheds and shops.

Employees shall not wear loose fitting clothing or gauntlet type gloves when working around moving machinery.

Employees handling irritating compounds or materials treated therewith, shall wear proper gloves or other effective hand protection.

SEAT BELTS ARE FURNISHED AND ARE TO BE WORN:

POISONOUS SNAKES:

Where work is performed in a snake infested area, all employees shall be warned of the dangers and instructed in safe working procedures. Crews working in snake infested areas shall be equipped with a snake bite kit and should wear high boots, leggings, or other appropriate protection.

FIRE EXTINGUISHERS:

All cars and trucks shall be equipped with a fire extinguisher of the Dry-Chemical type and all buildings shall be equipped with suitable extinguishers.

Extinguishers shall be kept in good condition and inspected every 12 months with inspection tag dated and signed.

Dry chemical can be used on class B fires—oil, gasoline, and other flammable liquids, also on class C fires—electrical equipment.

Foam type can be used on class A fires—wood, paper, rubbish, and deep seated fires, also on class B fires—oil, gasoline, and other flammable liquids.

Carbon dioxide type can be used on class B fires—oil, gasoline, alcohol and other flammable liquids, also on class C fires—electrical equipment.

Section 6

SIGNS - BARRICADES

MOWER FLAGGING

Fluorescent flagging material is to be installed on all mowers as shown in the diagram sent out by the Maintenance Department.

MEN WORKING SIGNS

Men working signs (30″ x 30″) shall always be used when one or more maintenance men are working on or adjacent to roadway.

The "men working sign" shall be supplemented with a 13″ x 13″ 35 MPH sign displayed on the top except in zones restricted to lesser speed. The sign shall be removed promptly when the maintenance work is stopped and shall be replaced when work is resumed.

A "men working" sign mounted on a portable tripod shall be erected not less than 750 feet on either side of the section where maintenance work is being undertaken. It shall be placed on the right shoulder of the roadway facing traffic. The signs shall be moved forward so that there is at no time, an interval greater than 2,000 feet between sign and maintenance work.

A flagman shall always be used when maintenance work is on or adjacent to the roadway and it is necessary to stop vehicular traffic to assure safety to both traveling public and personnel.

A "Stop for Flagman" sign shall be erected 750 feet in advance of the flagman. The flagman shall wear the standard prescribed fluorescent red jacket, hard hat, and use the approved hand "Stop and Slow" paddle.

BARRICADES

Barricade construction and signing for use of said barricades must conform to the A.A.S.H.O. Manual on "Uniform Traffic Control Devices for Streets and Highways."

Section 7

INSTRUCTIONS TO FLAGMEN

INSTRUCTIONS TO FLAGMEN

The flagman has one of the most important jobs on the crew; he has the responsibility of protecting the traveling public, protecting our men and equipment, and also he has to protect himself.

Department employees must act with courtesy under any and all circumstances. There must be no display of temper. Arguments with the public, regardless of cause, must be avoided.

The position taken while flagging traffic is an extremely important matter to be considered. The flagman will tell each driver stopped, briefly and courteously, why he is stopped and approximately how long he will be held, then move to a position near the rear of each vehicle stopped to be plainly visible to approaching traffic.

The flagman's sign will be a minimum of 750 feet from him. In heavy traffic, this distance must be extended to give approaching traffic ample warning.

Before flagmen are used, they shall be instructed on the proper methods of flagging. Refer to the manual "Instructions to Flagmen." Required reading.

PROPER ATTIRE FOR FLAGMAN

Hard hat.

Fluorescent red vest.

Approved hand "Stop and Slow" paddle.

Section 8

ENGINEERING CREWS

All personnel working on or near a present traveled roadway are required to wear hard hats and fluorescent vests. This vest must be worn as the outermost garment.

Survey party signs (30″ x 30″) shall always be used whenever any field survey work is of such a nature as to form a possible hazard to members of the surveying crew from the motoring public.

The "survey sign" shall be supplemented with a 13″ x 13″ 35 MPH displayed on top of the sign, except in zones restricted to lesser speed. The sign shall be removed promptly when the survey work is stopped and shall be replaced when work is resumed.

A "survey party" sign mounted on a portable tripod shall be erected not less than 750 feet on either side of the section where survey work is being undertaken. It shall be placed on the right shoulder of the roadway facing traffic. The signs shall be moved forward so that there is at no time, an interval greater than 2,000 feet between sign and survey crew.

A flagman shall always be used when survey crews or interview crews are working on or adjacent to the roadway and it is necessary to stop ve-

hicular traffic to assure safety to both traveling public and personnel.

A "Stop for Flagman" sign shall be erected 750 feet or more in advance of the flagman. The flagman shall wear the prescribed fluorescent red vest, hard hat, and use the approved "Stop and Slow" paddle.

THE FOLLOWING PRECAUTIONS REGARDING HAZARDS OF SURVEYING OPERATIONS SHALL BE MAINTAINED

A. It is recommended that high shoes with non-slip soles be worn.

B. Instruments shall be put together or taken apart clear of traffic lanes.

C. A steel tape shall not be left where traffic will pass over it.

D. Men taking sections shall give vehicles the right-of-way unless a flagman is being used.

E. Always remove plum-bob when carrying instruments and do not attempt to climb a fence or other obstruction with instrument over shoulder or in arms.

F. Survey instruments shall not be left on the roadway unattended.

G. When working through brush, employees shall not follow too closely behind other employees.

H. When clearing a path through brush, employees should make sure there are no obstructions before swinging a cutting tool.

When working in the vicinity of high tension wires, extreme caution shall be taken to prevent the contact of the wires with any survey equipment. A survey chain shall not be thrown or placed where wind or other conditions may move it into contact with the wires or constitute a hazard to traffic or other workers. Steel tapes will not be used when measuring over energized lines or rails.

Section 9

TRAFFIC HAZARDS

PARKING AND BACKING

When parking on the road surface all equipment shall be kept on the same side of the highway where possible, and in no case shall they be parked opposite each other.

Whenever possible, park your vehicle where you will not have to back.

When working between signs and flagmen, where one-way traffic is being maintained, the driver of the State truck should keep a sharp lookout for traffic when backing or turning in the area.

BRIDGE REPAIRS UNDER TRAFFIC

Bridge repairs under traffic are very hazardous both to our men and also to the traveling public, and all possible precautions shall be taken to protect both our men and the traveling public.

Always use proper signs, flagmen, barricades, and other traffic control devices where possible when re-decking a bridge under traffic.

Unfinished work on the roadway shall be well protected at night with signs, barricades, lights and flagmen if necessary.

When working on or adjacent to traveled roadway, the supervisor will be responsible to see that work zones are properly signed to protect his crew and the motoring public.

SNOW REMOVAL

Whenever absolutely necessary to operate snow removal or any other equipment against traffic, proper signs and flagmen must be used. The only exceptions to this policy will be those specifically approved by the Administrator — Maintenance Division.

BROOMING

Flagmen are required at each end of brooming operations. The Flagman will stop all traffic and warn them of the conditions ahead. Brooming operations must be limited to one mile segments.

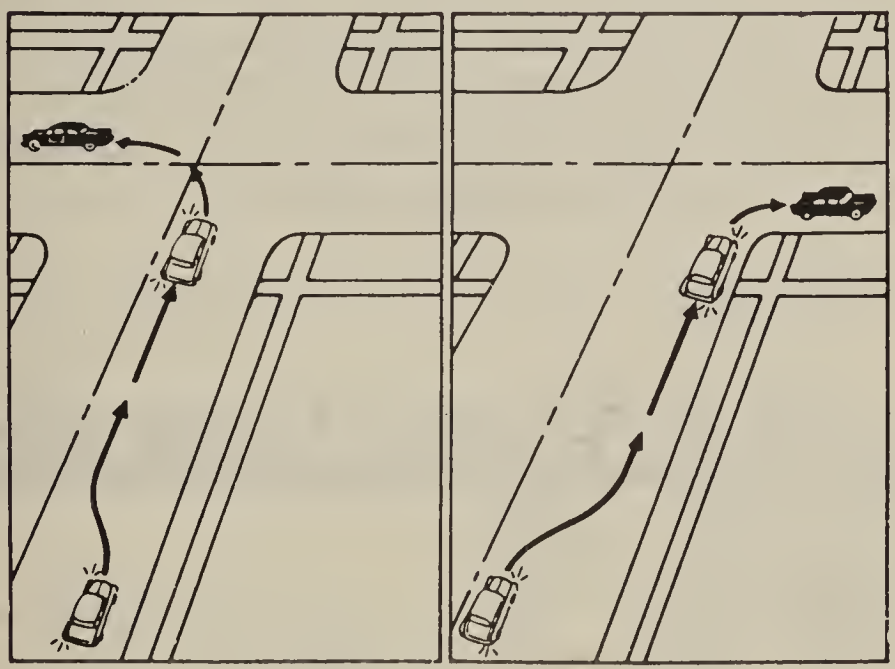
Section 10

OPERATION OF MOTOR VEHICLES

A. LICENSE

A driver's license must be carried by all persons operating a motor vehicle and truck drivers must carry a chauffeur's license and must be over 18 years of age.

B. TURNING



GENERAL

Slow down gradually and GIVE THE DRIVERS FOLLOWING A CHANCE TO CHANGE THEIR PACE AND EITHER STOP OR GO AROUND YOUR VEHICLE.

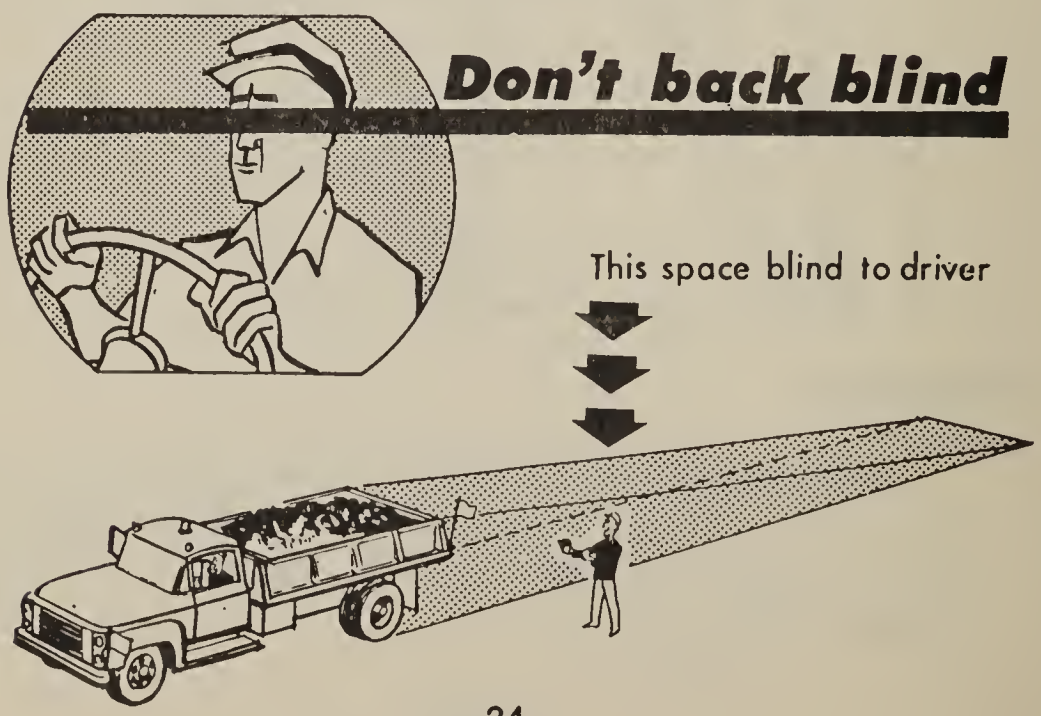
RIGHT TURN

Get in the proper lane, give the approved signal for a right turn, slow down far enough from the corner, look both ways in intersecting highways before making the turn, keep close as possible to the right, do not turn widely to the left before entering the intersecting highway.

LEFT TURN

Approach and start the turn from the center lane or as near as possible to the center of the highway from your side of the road; give the approved signal for a left turn; YIELD THE RIGHT OF WAY TO ALL VEHICLES WHICH THE TURN MIGHT BLOCK OR HINDER: always enter the right half of the street or highway into which the turn is being made.

C. BACKING



Avoid backing whenever possible. When you have to back, get out and walk back to be sure there is nothing behind you.

Backing accidents are usually chargeable.

D. PASSING

Always give yourself plenty of time to pass. It is the responsibility of the driver who is passing not only to pass in complete safety, but to get back into the line safely without cutting in or causing confusion to others.

When starting to pass another vehicle, and you are not sure the operator of the other vehicle sees you, don't try to sneak by, but blow your horn one short blast to call it to his attention.

Be sure to allow safe distance before returning to right lane.

Do not pass at intersections, on bridges, or by weaving through traffic.

E. TOWING OF EQUIPMENT

When equipment is towed, careful inspection of hitch must be made to assure safe movement. When a trailer or other piece of equipment is towed, care shall be taken to guard against the equipment riding over the center line of road.

F. SAFE DRIVING PRACTICES

Defensive Driving—A defensive driver is one who makes allowances for the lack of skill and lack of knowledge on the part of the other driver, who recognizes that he has no control over the actions of other drivers and pedestrians, nor over conditions of weather and road, and who therefore, develops a defense against all of these hazards. He yields the right of way and makes other concessions to avoid collisions. He is careful to commit no driving errors himself, and is defensively alert to avoid the accident traps and hazards created by weather, roads, pedestrians and other drivers.

All Department of Highway drivers should practice defensive driving.

G. DRIVER RESPONSIBILITY

It is the personal responsibility of every driver to operate without an accident and to be constantly on the alert so that he is not caught in a last minute effort to avoid an accident. Neither icy roads, curves, hills, carelessness, nor ignorance on the part of others, relieves the driver in the slightest degree of his responsibility for safety. Guard against being hypnotized by the vehicle you're following.

H. SEAT BELTS

All employees using Motor Pool or Department of Highway vehicles equipped with seat belts shall use them. SEAT BELTS CAN SAVE YOUR LIFE.

They are to be in use at all times when a vehicle is in motion with the exception of drivers operating a truck being used in patching operations where frequent stops make their use impractical.

I. SIGNALS BY DRIVERS

Many drivers place too much reliance upon signals. THEY SEEM TO BE OF THE OPINION THAT WHEN THEY SWITCH ON A TURN SIGNAL, THAT THEY ARE RELIEVED OF ANY FURTHER RESPONSIBILITY TOWARD OTHERS ON THE HIGHWAY, THAT THEY MAY PROCEED TO TURN RIGHT OR LEFT, AND THAT IT IS UP TO THE OTHER DRIVER TO LOOK OUT FOR THEM. NOTHING COULD BE FURTHER FROM THE TRUTH.

Even though turn signals are properly set, it is still the responsibility of the driver to have his vehicle in a safe position for a right or left turn and to COMPLETE THE TURN WITHOUT ACCIDENT.

An expert and alert driver figures out what the other driver might do and acts accordingly. He is ready to stop for the fellow who runs through on the yellow light, he lets the reckless passer into line even though tempted to squeeze him, he watches for the fellow who may pull out of a parking space, if possible he stays out of the way of the approaching driver who is trying to get back in his own lane, he shrugs his shoulders and lets the road hog have his way.

J. SAFE FOLLOWING PRACTICES

One car length for each ten miles of speed under ideal driving conditions, to be lengthened considerably under adverse conditions. On open road, our trucks in convoy must stay at least 500 feet apart.

K. SPEED

Driving too fast for conditions—The competent driver should adjust his speed so that he has his vehicle under control at all times; he should at all times drive at a safe speed; reduce speed on slippery, narrow or rough roads, reduce speed in congested areas, reduce speed after dark, never overdrive headlights and approach intersections at a safe speed.

L. MAXIMUM SPEED LIMITS FOR MOTOR POOL OR DEPARTMENT OF HIGHWAYS VEHICLES OR EQUIPMENT

	Day	Night
All Vehicles.....	55	55

The above are maximum speeds and should be reduced when road, weather, or traffic conditions warrant it.

M. MINIMUM SPEED

No driver shall drive at a speed which is so slow as to block the normal movement of traffic except when it is necessary for safe operation.

When traffic is blocked by necessarily slow speed of the Department vehicle, the driver shall pull off the pavement occasionally to permit the blocked traffic to pass.

Snow plows raising a snow cloud or brooms raising a dust cloud, must be slowed or pulled off the road at regular intervals to allow traffic stacked up behind to pass.

DISTANCES REQUIRED TO BRING YOUR CAR TO A STOP AT DIFFERENT SPEEDS

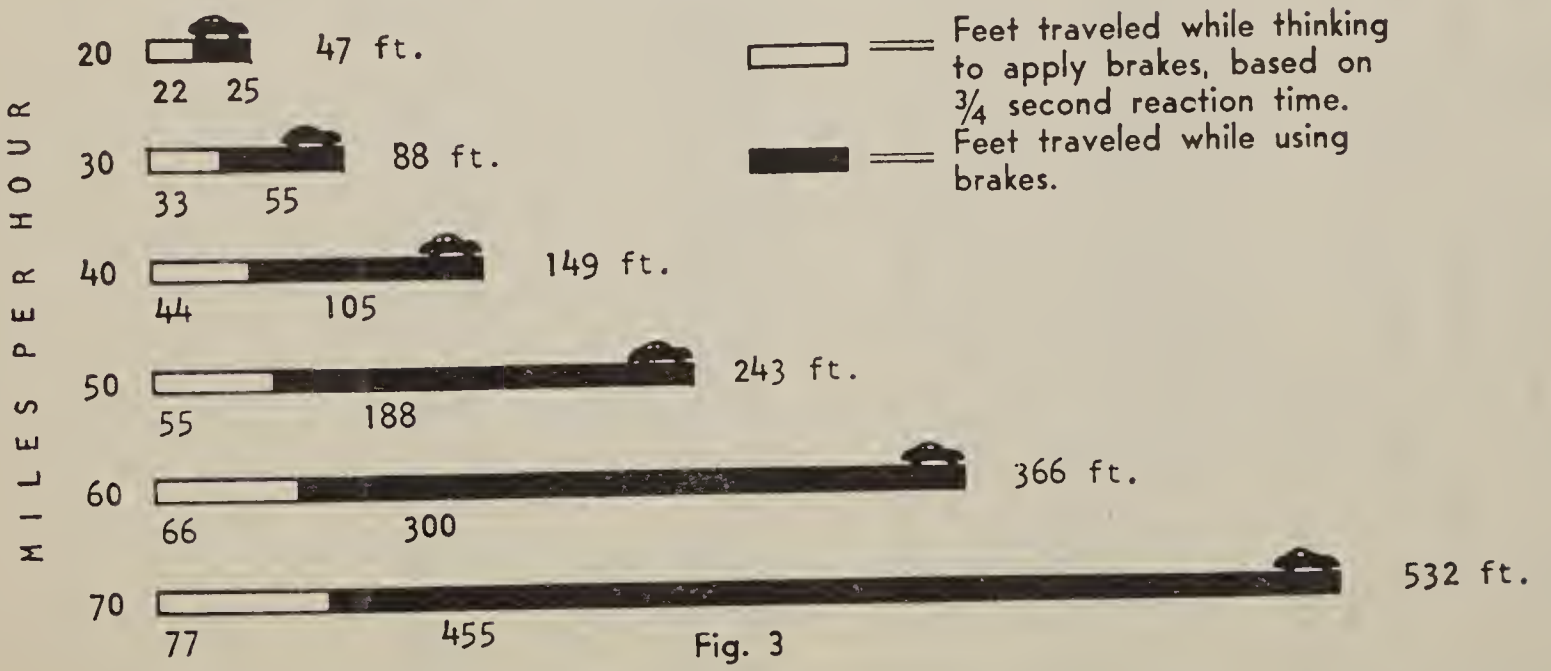


Fig. 3

CHART SHOWS TOTAL MINIMUM STOPPING DISTANCES WITH PERFECT FOUR WHEEL BRAKES, ON BEST TYPE OF ROAD SURFACE, UNDER MOST FAVORABLE CONDITIONS. THE AVERAGE CAR REQUIRES A MUCH GREATER STOPPING DISTANCE.

ADMONITION

Safety rules are the worker's protection and friend. Learn these rules and obey them. You know that if an accident has happened to someone else, it can happen to you.

Every rule in this book is based upon experience, and each has been adopted for the sole purpose of protecting you.

Section 11

CONDITION OF EQUIPMENT

INSPECTION AND MAINTENANCE

It is the responsibility of the driver not only to operate his vehicle but also to make daily inspection to see that it is kept in good mechanical and safe condition. The driver knows when brakes need adjustment, when steering is loose and shaky, when one headlight is out, and should see that these items are promptly reported.

BRAKING

Be sure your brakes, both foot and emergency, are working properly before you start out. If your vehicle does not have brakes, don't drive it.

Avoid locking the wheels by sudden braking, apply the brakes gradually, then release them, repeat this until the vehicle is stopped.

Leave the clutch engaged until just before you come to a full stop, then disengage the clutch to keep from stalling the motor.

Check your brakes after passing through water.

Reduce your speed before reaching a curve so you will not have to brake while going around the curve.

LIGHTS

Headlights serve two purposes; to aid vision and to help others see your vehicle.

Headlights must be turned on at all times when moving on the highway. Parking lights are for parking only and are not to be used when the vehicle is in motion.

Keep all lights in good repair and wiped clean.

REVOLVING LIGHTS

Amber colored revolving lights are mounted on all units used for sanding or snow removal. If this light is on a unit used for sanding operations and box is ever in raised position, the light shall be mounted on prescribed bracket so that it will go up with the box. These lights will be in operation whenever plows or sanders are mounted even though not actually plowing.

Revolving lights should also be used for Maintenance work when within a signed work zone.

TIRE CHAINS

Use your tire chains whenever the conditions are bad and don't wait until you get stalled in a dangerous spot before you put them on.

Winterized tires are a help under dry snow conditions but when the snow packs down hard

and smooth or melts and freezes into hard ice, they are of doubtful advantage.

You can proceed safely with good tire chains when it is impossible to proceed otherwise.

Keep your tire chains as tight as possible, as more chains are pounded to pieces than are actually worn out.

REFUELING

The motors of all equipment shall be stopped while filling gasoline tanks, and care exercised to prevent overflow of gasoline. The nozzle of the gasoline pump hose shall be kept in direct contact with the tank to guard against ignition of gasoline by static electricity.

Hand operated pumps in our rural shops present a definite safety hazard. When gas is pumped, a leak develops around the pump. This must be corrected by repacking the pump, or whatever is necessary to stop the leak.

No smoking is permitted while fuel is being poured into the tank.

Section 12

OPERATION OF POWER EQUIPMENT

MOVEMENT OF EQUIPMENT

The moving of heavy equipment such as shovels, dozers, etc., by the use of trailers or other trailed equipment, requires a great deal of planning.

Routes should be carefully planned so the heavy load is not routed over country roads with weak bridges.

When traffic piles up behind the slow moving equipment, an effort should be made to pull off the pavement where possible and let the traffic by.

LOADING OF EQUIPMENT

All trucks loading under a shovel should be equipped with cab guards. If trucks are not so equipped the driver shall get out of the cab while the truck is being loaded. The driver shall stand clear of the swing of the bucket so as not to be struck by rocks which might roll off the truck while it is being loaded.

Even though the truck is equipped with a cab guard it is good practice to get out of the cab when large rocks are being loaded.

OPERATION OF EQUIPMENT

No operator shall attempt to do any work with a power shovel that is beyond the safe limit of the equipment. Lifting of large rocks beyond the capacity of the shovel is dangerous and could tip the shovel over especially when the swing is made.

Never swing the bucket over the cab of the truck.

Shovel operators shall be cautioned about working their equipment too close to the edges of cuts or fills.

Do not unload bucket from extreme height above trucks.

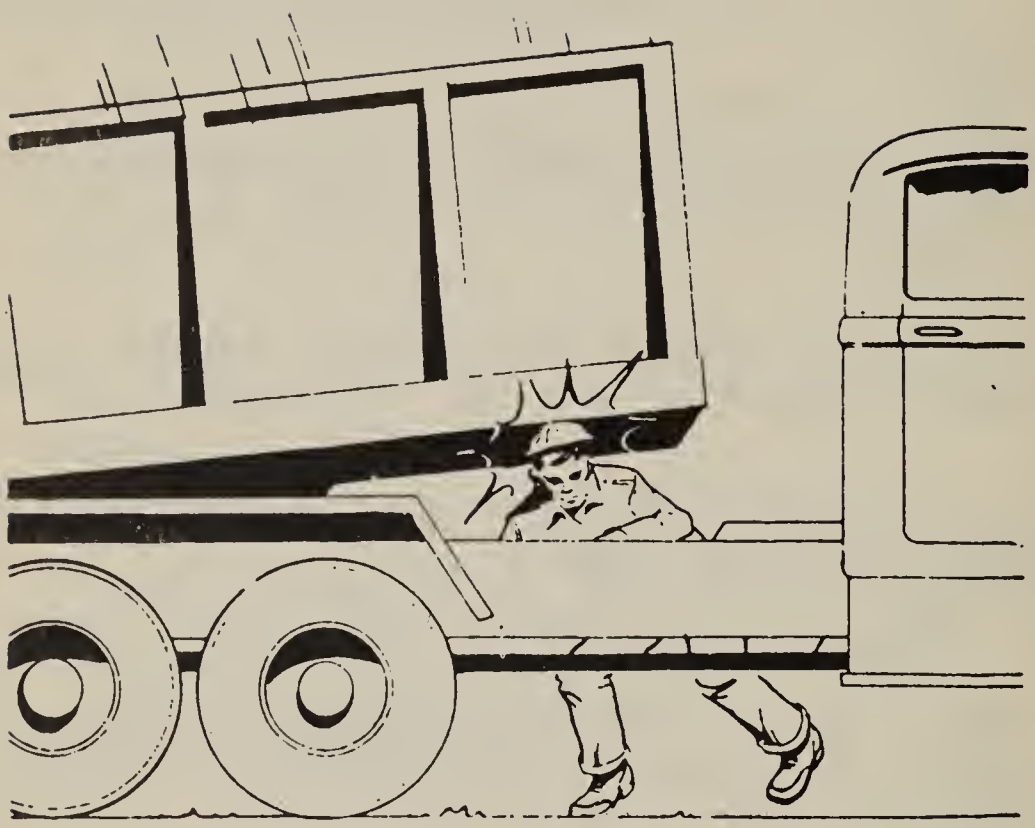
Trucks shall be loaded so no material will fall off while being hauled.

Front end loaders, dozers and graders shall be parked on level ground if possible. Buckets and blades shall *always* be lowered when not in actual use.

Dozers working in timber shall be equipped with cab guards.

Never crawl under a dozer blade unless it has been blocked.

If possible, make all turns with the operator on the up-hill side of the dozer.



Never reach or get under a raised truck bed unless the bed has been blocked.

POWER LINES

All shovels and cranes shall have mounted, in plain view of the operator, the sign reading, "Warning," unlawful to operate this equipment within ten (10) feet of high voltage lines.

Extreme caution shall be used when operating shovels and cranes near power lines unless you are certain the power has been cut off.

If the power is not cut off, be sure the swing of the bucket or boom is never within ten feet of high voltage lines.

Section 13
STORAGE

FLAMMABLES

All storage tanks shall be equipped with proper relief vents.

Vents shall not be located close to open flame, heating apparatus, or any source of ignition.

Inside storage of inflammable liquids or lubricating oils in drums, can, or other containers, shall be guarded against any ignition source and whenever possible segregated in a fireproof room or separate building.

HOUSEKEEPING

Good housekeeping is very important in storerooms and in yards. Material shall be stored to prevent falling, tripping, and collision hazards.

Keep aisles clear—especially those to the fire extinguishing equipment.

Keep ladders in good repair; place them carefully. Do not stand on boxes or benches, or climb the face of bins.

FIRE HAZARDS—"NO SMOKING SIGNS" WILL BE INSTALLED AROUND ALL FLAMMABLE MATERIALS

Good housekeeping is a "must" for safety and fire protection.

Waste, excelsior, rags, and crates shall be promptly removed from warehouses after material has been unpacked.

Metal cans with covers shall be installed for used oil or paint rags.

Fire extinguishers shall be located in warehouses at locations where they can be reached in case of fire. EXTINGUISHERS SHALL BE KEPT IN GOOD CONDITION AND EMPLOYEES SHOULD KNOW HOW TO USE THEM.

Rubbish shall be removed and not allowed to accumulate.

Section 14
OPERATIONS OF SHOPS

MACHINERY

All hazardous machines, saws, line shafts, belts, gears, etc., shall be properly guarded.

LATHES

Wear suitable clothing when working on a lathe, so that nothing can get caught in the work.

Keep fingers away from rotating work and moving parts of the machine. Use shifter to shift belt.

Always allow lathe to stop turning by itself, not by placing hand on the chuck or belt.

Play safe and wear the proper type of safety goggles or face shield when working on the lathe.

Keep the lathe bed and floor surrounding the machine free of chips and turnings.

Use suitable bench or rack for tools so they can be kept off the lathe.

DRILL PRESSES

Use drill vice when drilling small parts, clamp larger parts securely.

Use brush to remove chips from table and work.

Remove chuck key and drift from sleeve of drill before starting machine.

Keep tools, brushes, etc., where they can be found without reaching back of machine.

CLOTHING

Wear clothing that fits properly while working on machinery around the shop.

Keep sleeves buttoned or cut off. Avoid wearing loose clothing that can get caught in the running machinery.

HAND TOOLS

Always use your welding helmet when welding. Electric welding offers a much greater eye hazard than gas welding.

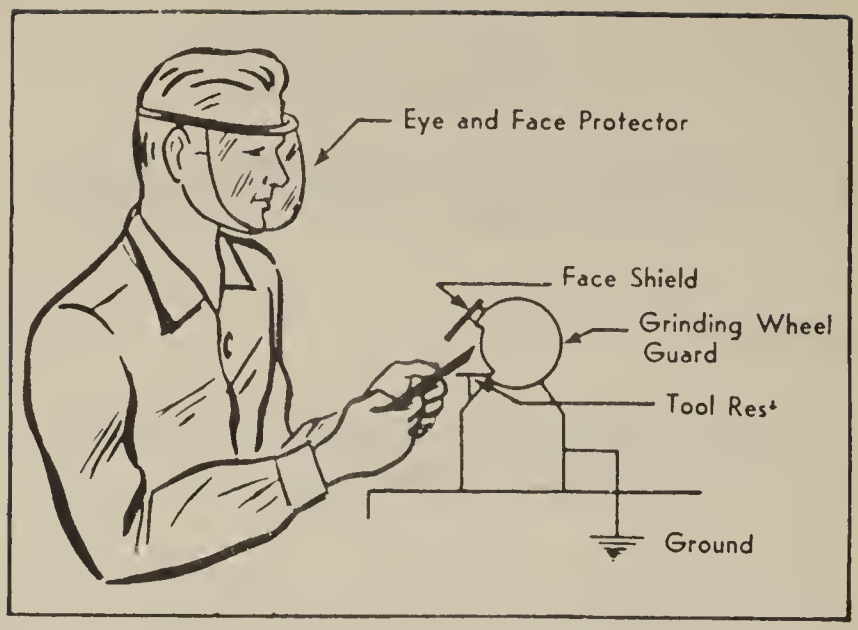
All welding operations involve the hazard of flying sparks and metal splashes.

Check the wrenches and other tools you use.

Keep them in a safe working condition and use the right tool for the job.

Electric hand tools should be grounded with an extra wire if one has not been built in.

Use some sort of push stick or tool to push short pieces of wood past the saw blade when operating band or circular saws.



GENERAL

Goggles or shields must be used when grinding. Don't trade a good eye for a plastic one.

Never depend on jacks or chain hoists alone to support a car you have to work under. Block it.

Use only electric extension lamps and portable electric tools with cords and fittings that are in good condition.

Be sure your feet are clear of passing automobiles or moving machinery when you get under a car.

Do not wash parts in gasoline, use a non-toxic solvent—requisition from your Division office. Absorbent compound is available for use on shop floors.

Don't attempt to lift anything too heavy for you. Get help or use a hoist.

If your clothes become soaked with oil or gasoline, change them. Don't take the risk of catching on fire.

Making adjustments on motors when they are running is dangerous and particular care should be used to keep from getting hand in fan or on hot manifold.

CARBON MONOXIDE

Carbon monoxide is colorless, tasteless, and odorless, giving no hint of its presence.

Guard against carbon monoxide gas from exhaust of running engines.

When it is necessary to work on equipment with motor running inside the shop, be sure you have all possible ventilation or a tube on the exhause pipe to carry the gas away.

TOXIC MATERIAL

Celluloid decomposes readily on being heated to about 300 degrees, giving off heat and large volumes of toxic gases (mostly carbon monoxide).

Some steam cleaning compounds give off toxic gases, and where they are used in closed areas of limited size, respirators should be used.

Some of these poisons are absorbed through the skin as well as by breathing the fumes.

Do not clean the skin with carbon tetrachloride, gasoline, turpentine, or thinners.

When using fire extinguishers on a fire, stand on the windward side of the fire whenever possible so you won't breathe the toxic gases.

In all forms of burning, it is good practice to stay out of the smoke as much as possible to avoid possible toxic gases.

Section 15

HAND OPERATIONS—USE OF SMALL TOOLS

A. ROAD MAINTENANCE

Workers shall be sure they are on good footing and clear of obstructions or fellow workers before using axes, hatchets, brush hooks, scythes, sledge hammers and similar tools.

The foreman is responsible for the condition of tools in his charge, and should be certain that the men they are assigned to understand how to use them.

All tools shall be kept in good condition and shall only be used for the purpose intended.

Mushroomed wedges, chisels and punches shall be replaced or repaired.

Axes should not be used as a striking hammer.

Rock hammers shall not be used for striking hammers, as it does not have the proper face for this purpose. Also the face of the rock hammer will be destroyed.

When burning brush or weeds, check the direction of the wind before starting the fire, so the smoke will not blow across the pavement and be a hazard to the traveling public.

B. USE OF HOT ASPHALT

See that the kettles are dry before putting asphalt in them; know what grade the asphalt is, and do not heat it in excess of the maximum for that grade. Use thermometer. If smoke is a dense yellow, it is about to catch on fire—reduce heat immediately.

HAVE FIRE EXTINGUISHER AND BE SURE YOU KNOW HOW TO OPERATE IT. IF YOU HAVE TO USE THE EXTINGUISHER, BE CAREFUL NOT TO BREATHE THE FUMES.

WHEN BURNERS GO OUT, DO NOT LIGHT WITH A MATCH, USE A LONG TORCH.

Inspect fuel and asphalt hoses on kettles frequently. If any defects show up, replace the hose and do not cut off the end and re-use it.

C. USE OF LADDERS

Ladder maintenance: Good ladder maintenance is a must to keep a job safe. The three main causes of ladder accidents are:

1. Broken sections
2. Improper set-up
3. Unsafe practices of workers.

Ladder Use:

Place ladder securely against solid backing. Place the foot of the ladder one-fourth of the length of the ladder away from the building.

Clean mud or grease from shoes before climbing up to work.

Face the ladder and hold on with both hands whenever climbing up or down.

Work facing the ladder and hold on with one hand.

Use safety belt if the nature of the work requires it.

Do not reach too far from a ladder in any direction—Move the ladder.

Do not splice two ladders together. Get one long enough for the job.

Do not use a ladder as a horizontal member of a scaffold.

D. SWINGING SCAFFOLDS

Faulty scaffold construction causes many falling accidents. Some of the causes are:

1. Use of material that is too light.
2. Failure to overlap or fasten floor planks.
3. Improper bracing.
4. Knotty lumber or of inferior grade.
5. Handrail left off.
6. Too few nails or improper size used.

Never overload a scaffold. Always tie the fall lines to the scaffold itself, never to any part of the building. When using acid or caustic solutions, take every precaution to keep them from getting on scaffold ropes. Jumping onto or from a scaffold is dangerous. Do not climb or slide down the suspension ropes. Remove all loose objects from the scaffold when stopping work for meals or when leaving for the day. No work should be done on swinging scaffold during stormy weather.

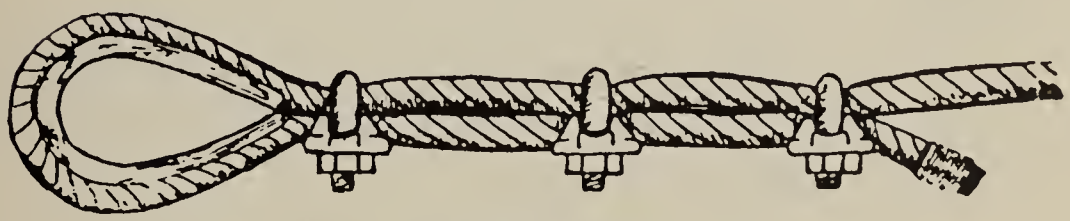
E. CABLE CLAMPS

The use of cable clamps or clips for joining lines is prohibited, except where used for transferring of slack lines from one place to another. If used at all, U-bolts should be over the short end and clamp over the part which carries the load.

U-bolt type clips, properly attached, as shown in the diagram will give maximum strength.

RIGHT

WRONG



WRONG

PUT CLIPS ON RIGHT

Section 16

USE OF EXPLOSIVES

FOR USE OF EXPLOSIVES REFER TO THE "MINIMUM SAFETY STANDARDS FOR THE CONSTRUCTION INDUSTRY" 1964, AS ADMINISTERED BY THE WORKMEN'S COMPENSATION DIVISION.

PROTECTION OF GENERAL PUBLIC

A. When a shot is about to be fired all persons near the place shall receive ample warning and blast shall not be fired until it is absolutely certain that everyone has moved to a safe distance.

B. On the highway, use Flagmen to stop traffic far enough from the blast to insure complete safety.

C. It is the responsibility of the blaster to make certain that the traffic is stopped before the shot is set off.

Section 17

RAILROAD CROSSINGS– EQUIPMENT & DEBRIS REMOVAL

Every precaution must be taken to insure that no ice, snow, gravel, or other debris is left on, or between the rails of the railroad track incidental to the passage of highway equipment or through reason of its operation at such points.

Those concerned are to be informed that the following practices are to be observed in the connection referred to:

1. Stop all heavy equipment before crossing railroad tracks and then cross only when it is safe to do so. Operators of highway equipment will stop sufficiently far back from the crossing so that there will be no doubt in the mind of the engineer operating the train that the operator of the highway equipment is aware that a train is approaching and that he has no in tention of crossing in front of the train.

2. Stop all heavy equipment after crossing railroad crossings and make a careful inspection of the crossings and flangeways to see that they are left clean.

3. Clean flangeways and crossings of any material such as gravel, sand, bituminous ma-

terials, snow, ice and slush left by the operation of the equipment.

4. Always raise the nose of the snow plow to clear rails and planks on crossings.

5. Notify railroad authorities in case crossings cannot be cleared at once.

6. Where cinder spreaders are used, they should be shut off at the crossing to prevent filling of the flangeways.

clip here

Name .....

District..... Division.....

I have received a copy of the Montana Department of Highways Safety Manual. I promise to carefully read these rules and I understand that I am required to observe them.

Signature..... Date.....

Note: This form is to be signed by the employee and will be placed in the employee's file in personnel records.

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